REMARKS/ARGUMENTS

Claims 1-3, 5-8, 16 and 18 are pending herein. Claims 9-15 and 19-33 have been cancelled without prejudice or disclaimer. Claims 5, 6, 8 and 18 have been amended hereby. Applicants respectfully submit that no new matter has been added.

Applicants respectfully submit that this Amendment is proper under Rule 116 because it does not present any new issues and places the application in better condition for appeal, if necessary, by (i) overcoming the claim objections, and (ii) cancelling the withdrawn claims.

1. Applicants appreciate the PTO indicating that claim 6 would be allowed if rewritten to overcome the objection discussed in section 2 below. Applicants respectfully submit that claim 6 has been so rewritten. In addition, Applicants respectfully submit that independent claim 1, from which claim 6 depends, and all claims pending herein are also in condition for allowance for the reasons explained below, and respectfully request that the PTO issue a Notice of Allowance for this application in due course.

2. The objection to claims 5, 6, 8 and 18 is noted, but deemed moot in view of rewritten claims 5, 6, 8 and 18 submitted above.

More specifically, claims 5, 8 and 18 have been rewritten to recite that the ceramic dense body comprises a material selected from the group consisting of yttria-stabilized zirconia, yttria partially-stabilized zirconia and cerium oxide. This further limits the claims from which 5, 8 and 18 depend by narrowing the materials from which the ceramic dense body is made. Along these lines, claim 6 has been amended to recite that the ceramic dense body instead comprises lanthanum chromite. Claim 6 now further limits claim 1 by specifying lanthanum chromite as the material for the ceramic dense body.

For at least the reasons explained above, Applicants respectfully submit that claims 5, 6, 8 and 18 properly further limit the claims from which they respectively

depend. Accordingly, Applicants respectfully request that the above objection be reconsidered and withdrawn.

3. Claims 1-3, 5, 7, 8, 16, 18 and 33 were rejected under §103(a) over Nishi in view of JP '077. Applicants respectfully submit that this rejection is moot with respect to cancelled claim 33, and otherwise respectfully traverse this rejection.

Independent claim 1 recites a laminated sintered body comprising a ceramic porous body having a thickness of at least 300 μm and comprising a material selected from the group consisting of a lanthanum-containing perovskite-type complex oxide, platinum-zirconia cermet, palladium-zirconia cermet, ruthenium-zirconia cermet, nickel-zirconia cermet, platinum-cerium oxide cermet, palladium-cerium oxide cermet, ruthenium-cerium oxide cermet and nickel-cerium oxide cermet. The laminated sintered body also includes a ceramic dense body having a thickness of 25 μm or smaller and comprising a material selected from the group consisting of yttria-stabilized zirconia, yttria partially-stabilized zirconia, cerium oxide and lanthanum chromite. The laminated sintered body has a helium leakage rate of 10^{-6} $Pa \cdot m^3/s$ or lower. Claims 2, 3, 5, 7 and 8 each depend directly or indirectly from claim 1.

Independent claim 16 recites a ceramic laminated sintered body comprising a ceramic porous body having a thickness of at least 300 μm and a ceramic dense body having a thickness of 25 μm or less. The laminated sintered body is obtained by a method comprising the steps of providing a green body for the ceramic porous body comprising a material selected from the group consisting of a lanthanum-containing perovskite-type complex oxide, platinum-zirconia cermet, palladium-zirconia cermet, ruthenium-zirconia cermet, nickel-zirconia cermet, platinum-cerium oxide cermet, palladium-cerium oxide cermet, ruthenium-cerium oxide cermet and nickel-cerium oxide cermet, and providing a green body for the ceramic dense body comprising a material selected from the group consisting of yttria-stabilized zirconia, yttria partially-stabilized zirconia, cerium oxide and lanthanum chromite. The method also includes the steps of laminating the green body for the ceramic porous body and the green body for the ceramic dense body to obtain a laminate, subjecting the laminate to

pressure molding by cold isostatic pressing to obtain a pressure molded body, and sintering the pressure molded body to obtain the laminated sintered body. Claim 18 depends from independent claim 16.

The PTO asserted that Nishi discloses a layered solid oxide fuel cell structure made of a NiO/YSZ system material that includes an air electrode comprising lanthanum manganese and an "electrolyte" comprising yttria-stabilized zirconia (see Office Action, page 3, lines 12-13). The PTO admitted that Nishi does not disclose that the air or fuel electrodes have a thickness of at least 300 μm or that the solid electrolyte film has a thickness of less than 25 μm (Office Action, page 4, lines 1-4). The PTO also admitted that Nishi does not "expressly teach the claimed helium leakage rate of the zirconia electrolyte layer as recited in claim 1" (Office Action, page 4, lines 15-16).

In an attempt to overcome the admitted deficiencies of Nishi, the PTO applied JP '077, and asserted that paragraphs [0025] and [0041] of JP '077 teach a ceramic dense layer with a helium leakage rate of $5x10^{-9}$ atm/sec ($5x10^{-10}$ Pa·m^3/s), and that the yttria-stabilized zirconia film of JP '077 functions as an electrolyte film. In connection with this, the PTO asserted that one of ordinary skill in the art would have been motivated "to use a YSZ electrolyte in the fuel cell of Nishi et al. having the helium leakage rate disclosed by JP '077" (Office Action, page 5, lines 1-3).

Applicants respectfully submit, however, that one skilled in the art would not have expected the helium leakage rate associated with the yttria-stabilized zirconia film in JP '077 to necessarily be present if the yttria-stabilized zirconia film of JP '077 were applied to the structure of Nishi instead of using the yttria-stabilized zirconia already disclosed in Nishi. That is, Applicants respectfully submit that JP '077 teaches that a yttria-stabilized zirconia film can be formed in a pin-hole free manner on a sintered Si_3N_4 compact. Applicants respectfully submit that it is clear from the teachings in JP '077 that the compact must be Si_3N_4, and that the Si_3N_4 compact must be sintered in order to provide the crystal structure and orientation required to form the pin-hole free yttria-stabilized zirconia film thereon. Moreover, Applicants respectfully submit that, along with being able to provide the pin-hole free structure, the yttria-

stabilized zirconia film must also be formed on a sintered Si_3N_4 compact having a specific facial columnar crystal structure in order to impart the helium leakage rate disclosed in JP '077.

On the other hand, Applicants respectfully submit that the green layers of the structure in Nishi are co-sintered. That is, Applicants respectfully submit that one skilled in the art would understand that the yttria-stabilized zirconia solid electrolyte material of Nishi is not formed on a sintered interconnector body, because Nishi discloses that the lanthanum manganese layer is co-sintered with the layers to connect the yttria-stabilized zirconia solid electrolyte layer to the NiO/YSZ fuel electrode layer) (see Nishi, paragraphs [0013], [0017] and [0019]). Along those lines, one skilled in the art would not have any reasonable expectation that the yttria-stabilized zirconia layer of JP '077 would be able to exhibit the same behaviors if that layer was formed on a green body rather than a sintered body.

There is simply no evidence in the applied references that the yttria-stabilized zirconia film of JP '077 having such a pin-hole free structure and exhibiting the disclosed helium leakage rate could even be formed on a lanthanum manganese layer such as that of Nishi in the first place, whether that layer was sintered or not. In view of the above, Applicants respectfully submit that one skilled in the art would not have been motivated to even attempt to try to form the pin-hole free yttria-stabilized zirconia layer according to JP '077 on the green lanthanum manganese or NiO/YSZ layers taught by Nishi, since the benefits and characteristics (pin-hole free state/helium leakage rate) attributed to the yttria-stabilized zirconia film in the structure in JP '077 are expressly derived in connection with the specific formation of that yttria-stabilized zirconia film on a sintered Si_3N_4 compact.

Along those lines, Applicants respectfully submit that one skilled in the art would not have had any reasonable expectation of successfully forming a pin-hole free yttria-stabilized zirconia film having the helium leakage rate according to JP '077 in connection with the structure of Nishi given the compositions and unfired (green) states of the layers in Nishi. Even if the yttria-stabilized zirconia film of JP '077 were used in Nishi, Applicants respectfully submit that there would be no way for one

skilled in the art to expect that it would yield the desired pin-hole free state and helium leakage rate disclosed in JP '077.

In view of the above, Applicants respectfully submit that independent claims 1 and 16, and all claims depend directly or indirectly therefrom, define patentable subject matter over the applied references and thus, respectfully request that the above rejection be reconsidered and withdrawn.

If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicants' attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

Respectfully submitted,

June 14, 2006
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